Toledo i965R /// S5180AG2N

Revision 0.1

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Before you begin…

Check the box contents!

The retail motherboard package should contain the following:

1 x Toledo S5180AG2N motherboard

1x 34-Pin floppy drive cable

4 x SATA cable

2 x SATA Drive Power Adapter

1 x USB2.0 cable

1 x S5180 User's Manual

1 x S5180 Quick Reference Guide

1 x TYAN driver CD

1 x I/O shield

If any of these items are missing, please contact your vendor/dealer for replacement before continuing with the installation process.

Chapter 1: Introduction

1.00 – Congratulations!

You have purchased one of the most powerful Intel processor solutions, Toledo i965R S5180AG2N. The i965R S5180AG2N is a flexible Intel® platform for multiple applications, based on the Intel® Q965 "Broad Water" MCH+ICH8 chipsets. It is designed to support Intel® Pentium® 4, Pentium® D and Core 2 Duo processors: Cedar Mill/Presler/Conroe Processors and up to 4GB DDR2-533/667/800 DIMM. This motherboard features 1 FLEX-ATX form factor, 6 USB ports, 2 Gigabit LAN ports, and 4 SATA II ports. The S5180 offers exceptional performance and versatility for all your server platform needs.

Remember to visit TYAN's Website at http://www.tyan.com. There you can find information on all of TYAN's products with FAQs, distributors list and BIOS setting explanations.

1.01 – Hardware Specifications

Processor
- Single LGA775 Socket
- Support Intel® Pentium® 4, Pentium® D and Core 2 Duo processors: Cedar Mill/Presler/Conroe Processors
- FSB 533/800/1066

Chipset
- Intel Q965 (Broadwater) MCH ----integrates Graphics
- ICH8
- SMSC SCH5027 Super I/O Chip

Memory
- Two 240-pin DDR2 DIMM socket in dual channels
- Maximum of 4GB DDR2-533/667/800
- No ECC support
- Support only unbuffered DIMMs

Expansion Slots
- One PCI-E ×16 slot (w/ ×16 signal from MCH)
- One PCI 32-bit, 33MHz slot

Integrated Serial ATA
- Support four SATA II Ports running at 3Gbps

Integrated LAN Controllers
- Two Intel 82573V GbE LAN controllers ----Operating at PCI-E ×1 from ICH8
- Two Gigabit LAN ports in total

System Management
- One(1) 4-pin CPU fan header
- Two(2) 4-pin system fan headers
- Two(2) Barebone fan headers
- Temperature and voltage monitoring
- Watchdog timer support

Integrated Audio
- Realtek ALC262 CODEC
- Stacked Mic-in/Line-in/Line-out audio jack
- 2 × 5 pin header for front panel audio header
- CD-in connector

Optional Tyan M3291 Server Management Daughter Card
- Renesas H8S2167 Baseboard Management Controller (BMC)
- Tailored for IPMI 2.0 specification
- Supports remote Power on/off ,cycle and reset support (IPMI-over-LAN)
- Server Management Daughter Card via optional 2 × 25 header

Back Panel I/O Ports – Stacked PS/2 Mouse & Keyboard ports – Two stacked RJ-45 with two USB 2.0 ports each (side-by-side) – One 15-pin VGA port – One 9-pin COM port – Stacked Mic-in/Line-in/Line-out audio ports **Integrated I/O Interfaces** – One floppy connector – Four SATA Ⅱ ports – Two USB 2.0 ports (via optional cable) – Tyan 2 × 9 front panel pin header 1 – Tyan 2 × 6 front panel pin header 2 – 2 × 25 connector for optional Tyan IPMI SMDC – One Chassis LCD module Interface connector	**BIOS** – Award 8Mb firmware hub – Serial Console Redirect – USB boot supported – Supports APM 1.2 and ACPI – PnP, DMI power Management – S0/S3/S4/S5 states supported **Power** – EPS 12V – Universal 24-pin, 8-pin power connectors **Form Factor** – 9″ × 7.5″ **Regulatory** – FCC Class B (Declaration of Conformity) – European Community CE (Declaration of Conformity)

Software Specifications

OS (Operating System) Support

Windows 2K PRO Sp4
Windows 2K Server Sp4
Windows 2K Advanced Server Sp4
Windows XP Pro Sp2
Windows XP (64 bit) SP1
Windows Server 2003(Enterprise) (32 bit)
Windows Server 2003 (64 bit)
Windows Vista (32 bit & 64 bit)
Note: Intel doesn't provide the Graphics driver for WIN Server 2003
SUSE Linux 10.1 GM-×86_64
SUSE Linux 10.1 GM-i386_32
Fedora Core 5.0 ×86_64 & i386 (2.6.15 – 1.2054) Only LAN driver recognized
Fedora Core 6.0 ×86_64 & i386 (2.6.18 – 1.2798)

TYAN reserves the right to add support or discontinue support for any OS with or without notice.

Chapter 2: Board Installation

Installation

You are now ready to install your motherboard. The mounting-hole pattern of the Toledo i965R S5180 matches the Flex-ATX specification. Before continuing with installation, confirm that your chassis supports a Flex-ATX motherboard.

How to install our products right…. the first time!

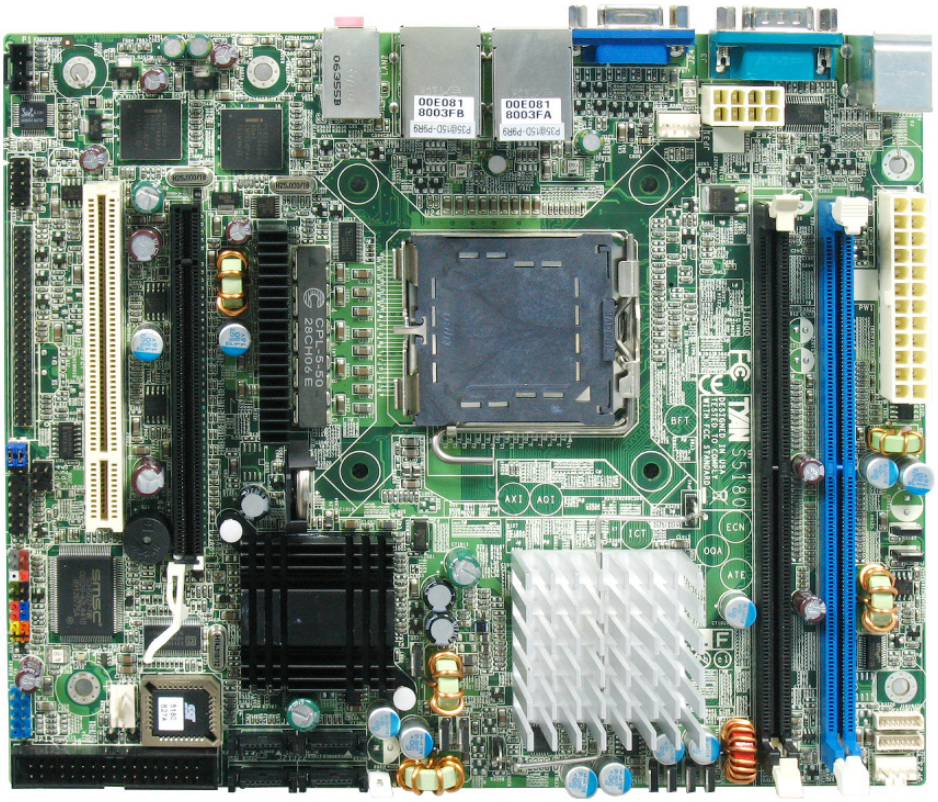
The first thing you should do is to read this user's manual. It contains important information that will make configuration and setup much easier. Here are some precautions you should take when installing your motherboard:

(1) Ground yourself properly before removing your motherboard from the antistatic bag. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). For the safest conditions, Tyan recommends wearing a static safety wrist strap.
(2) Hold the motherboard by its edges and do not touch the bottom of the board, or flex the board in any way.
(3) Avoid touching the motherboard components, IC chips, connectors, memory modules, and leads.
(4) Place the motherboard on a grounded antistatic surface or on the antistatic bag that the board was shipped in.
(5) Inspect the board for damage.

The following pages include details on how to install your motherboard into your chassis, as well as installing the processor, memory, disk drives and cables.

NOTE **DO NOT APPLY POWER TO THE BOARD IF IT HAS BEEN DAMAGED**

2.00 – Board Image

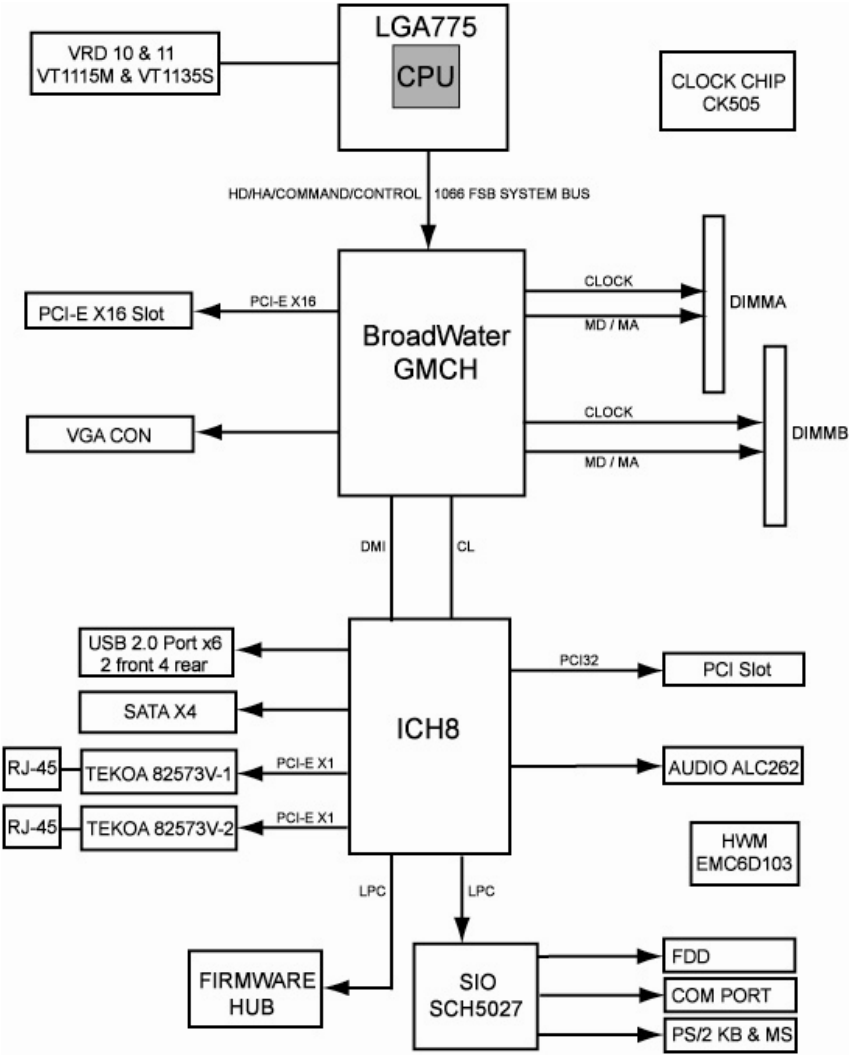


This picture is representative of the latest board revision available at the time of publishing. The board you receive may or may not look exactly like the above picture.

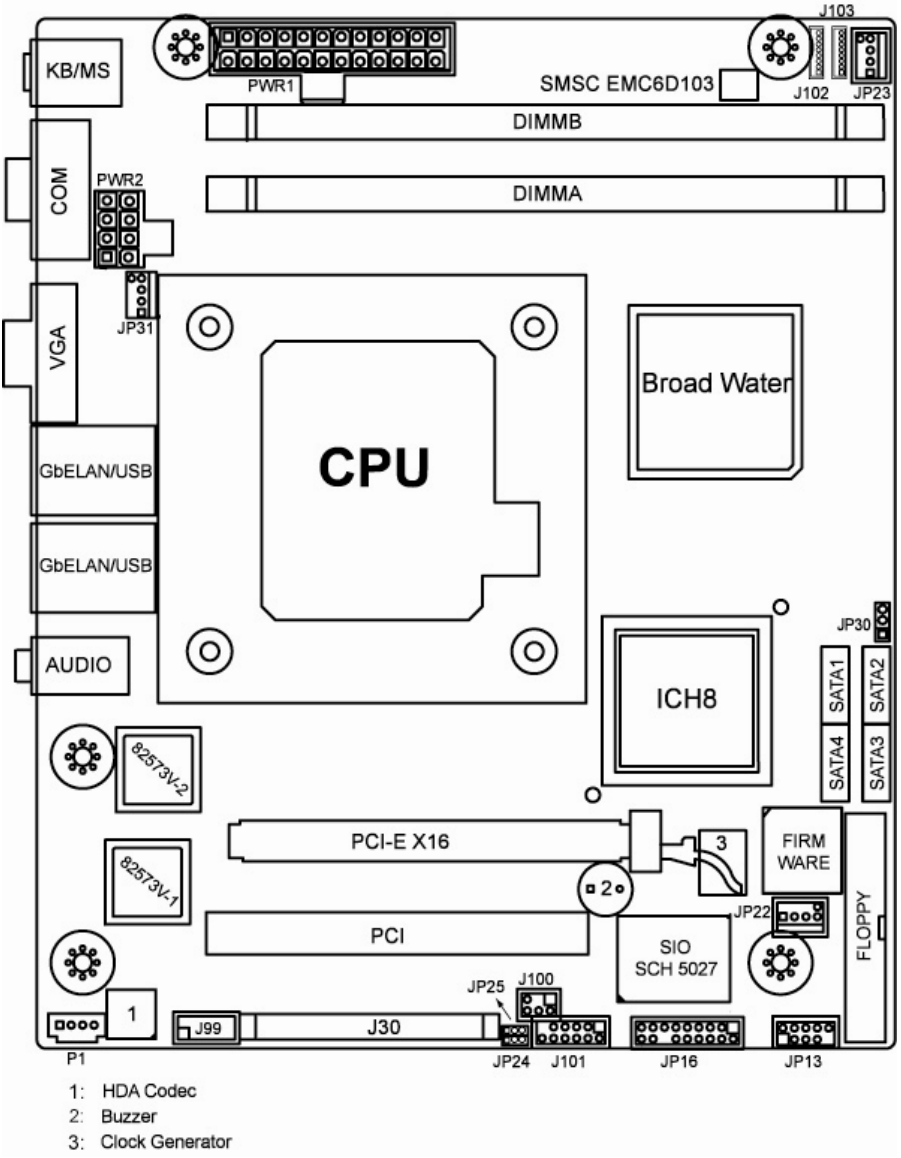
The following page includes details on the vital components of this motherboard.

2.01 – Block Diagram

S5180 Block Diagram



2.02 – Board Parts, Jumpers and Connectors



This diagram is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above diagram.

2.03 – Jumper Settings

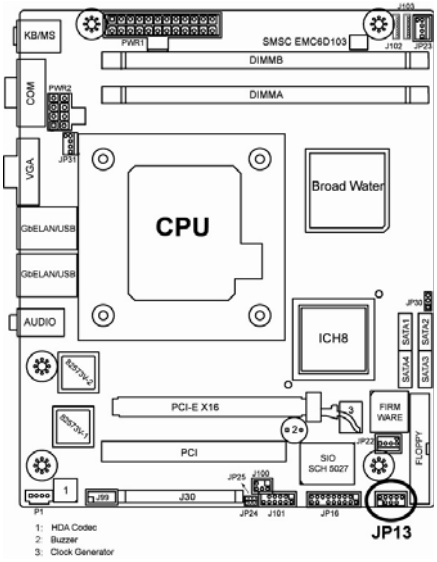
Jumper	Function	Settings
JP13	2 × 5 USB Pin Header	See Section 2.04
JP16	2 × 9 Front Panel Header 1	See Section 2.05
JP22, JP23 JP31	1 × 4 FAN Connector	See Section 2.06
JP24, JP25	LANA SMBus Selection	See Section 2.07
JP30	CMOS Clear	See Section 2.08
J30	2 × 25 SMDC Connector	See Section 2.09
J99	2 × 5 Intel High Definition Audio Front Panel Header	See Section 2.10
J100	2 × 3 Chassis LCD Module Interface Header	See Section 2.11
J101	2 × 6 Front Panel Header 2	See Section 2.12
J102, J103	1 × 8 Barebone FAN Header	See Section 2.13
P1	CD-IN Connector	See Section 2.14

Jumper Legend

	OPEN - Jumper OFF	**Without jumper cover**
	CLOSED - Jumper ON	**With jumper cover**

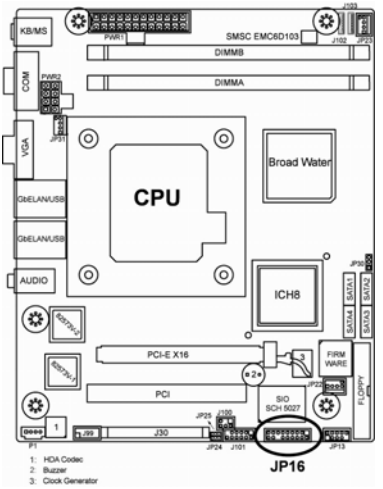
	To indicate the location of pin-1
	To indicate the location of pin-1

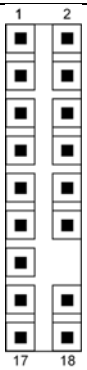
2.04 – USB Pin Header (JP13)



Signal Description	Pin #	Pin #	Signal Description
+5V PWR	1	2	+5V PWR
DATA1-	3	4	DATA2-
DATA1+	5	6	DATA2+
GND	7	8	GND
KEY	9	10	GND

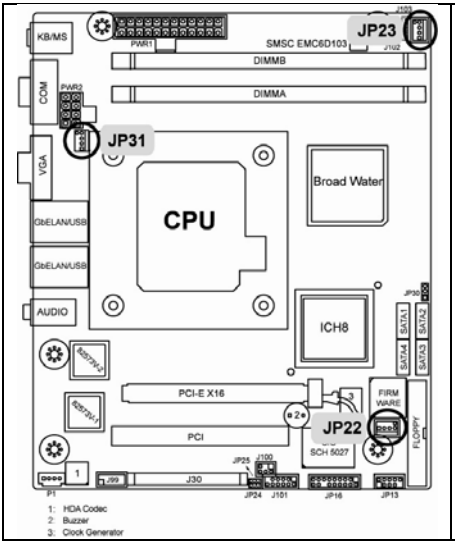
2.05 – Front Panel Header 1 (JP16)





Signal Description	Pin #	Pin #	Signal Description
HDD_LED+	1	2	PWR_LED+
HDD_LED-	3	4	PWR_LED-
RESET S/W	5	6	PWR S/W
RESET S/W	7	8	PWR S/W
GND	9	10	WLED+
NC	11	12	WLED-
5VSB	13	14	KEY
SDA	15	16	GND
SCL	17	18	INTRUDER#

2.06 – FAN Connector (JP22, JP23, JP31)



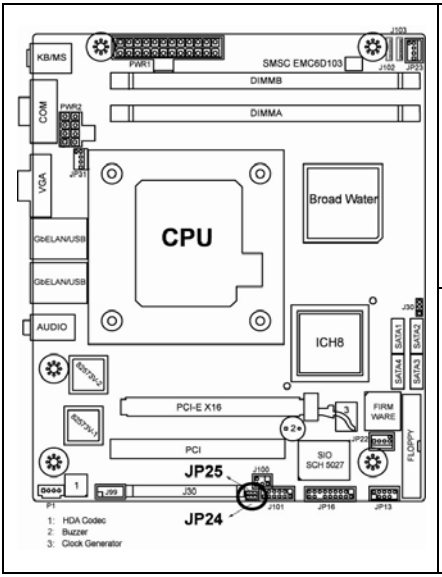
Pin_4 : PWM

Pin_3 : TACH

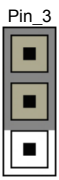
Pin_2 : +12V

Pin_1 : GND

2.07 – LANA SMBus Selection (JP24, JP25)

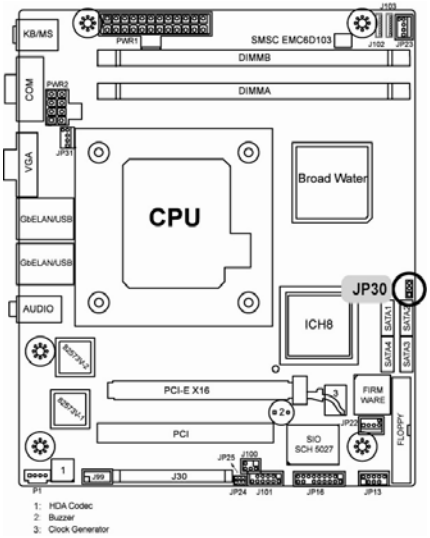


1-2: Connect LANA SMBus to motherboard SMBus



2-3: Connect LANA SMBus to SMDC SMBus

2.08 – CMOS Clear (JP30)



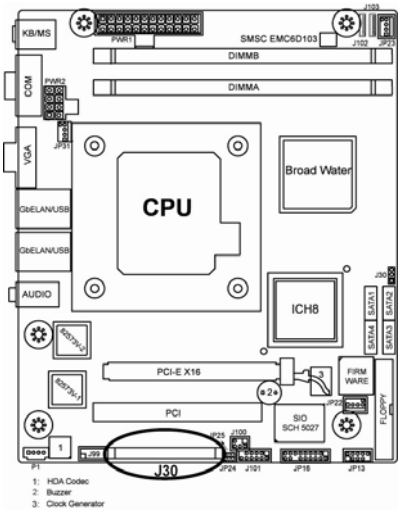
Pin_3	Default	Pin_3	Clear
Pin_1		Pin_1	

You can reset the CMOS settings by using this jumper or if you have forgotten your system/setup password.

- Power off system and **disconnect both power connectors from the motherboard**
- Use jumper cap to close Pin_2 and Pin_3 for several seconds to Clear CMOS
- Put jumper cap back to Pin_1 and Pin_2 (default setting)

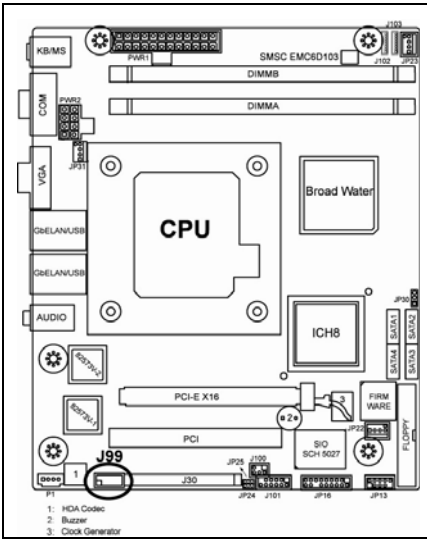
Reconnect power and power on the system

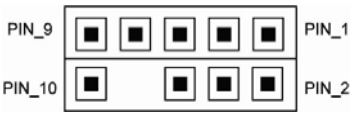
2.09 – SMDC Connector (J30)



For connection with Tyan Server Management Daughter Card (SMDC). The SMDC connector is compatible with only the Tyan M3291 (SMDC).

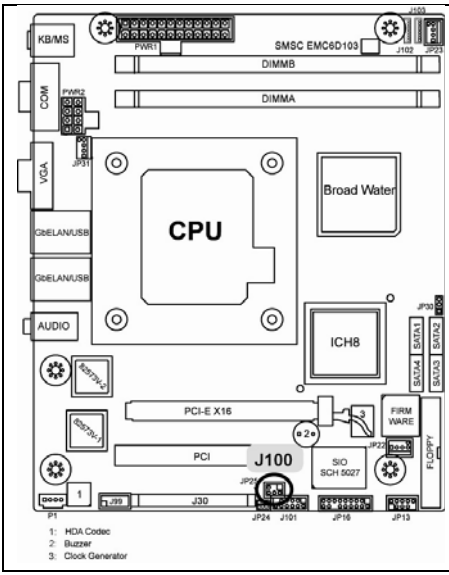
2.10 – Intel High Definition Audio Front Panel Header (J99)

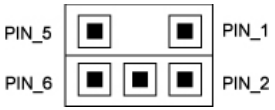




Signal Description	Pin #	Pin #	Signal Description
MIC2-L	**1**	**2**	GND
MIC2-R	**3**	**4**	PRESENT_N
LINE2-R	**5**	**6**	MIC2-JD
FRONT_IO_SENSE	**7**	**8**	KEY
LINE2-L	**9**	**10**	LINE2-JD

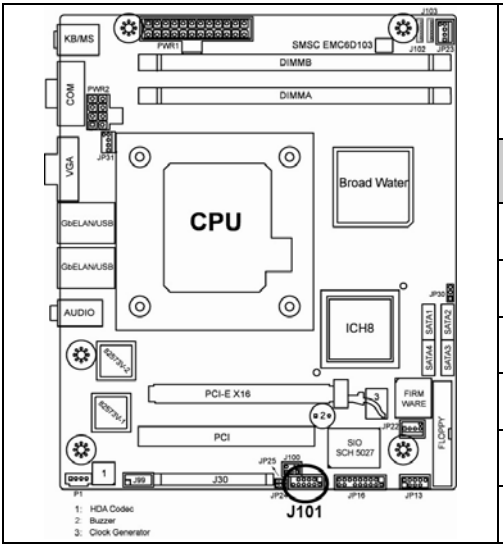
2.11 – Chassis LCD Module Interface Header (J100)





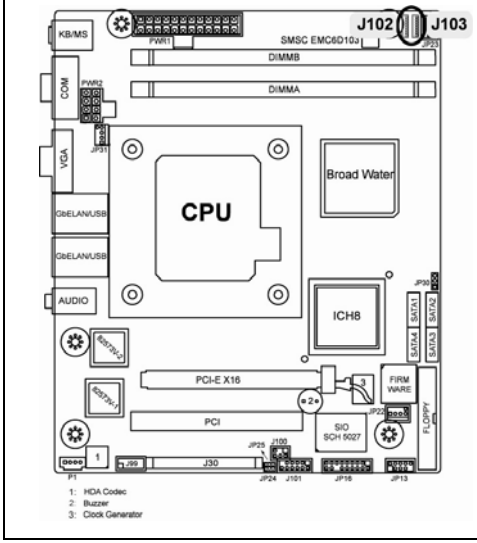
Signal Description	Pin #	Pin #	Signal Description
+5VPWR	**1**	**2**	SIN
KEY	**3**	**4**	GND
+5VSB	**5**	**6**	SOUT

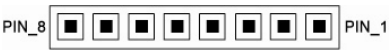
2.12 – Front Panel Header 2 (J101)



Signal Description	Pin #	Pin #	Signal Description
LAN1_LED+	**1**	**2**	LAN1_LED-
LAN2_LED+	**3**	**4**	LAN2_LED-
NC	**5**	**6**	NC
IDLED+	**7**	**8**	IDLED-
IDSW+	**9**	**10**	IDSW-
KEY	**11**	**12**	NC

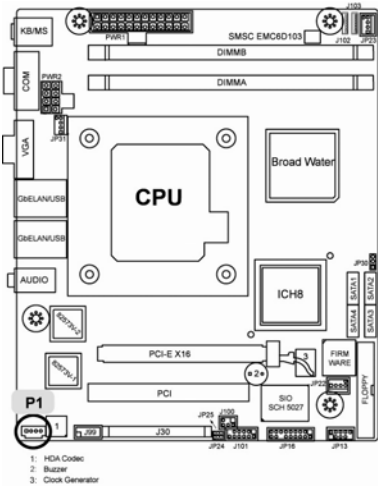
2.13 – Barebone Fan Header (J102, J103)





Signal Description	Pin #	Pin #	Signal Description
PWM1	**1**	**2**	+12V
TACH1	**3**	**4**	GND
GND	**5**	**6**	TACH2
+12V	**7**	**8**	PWM2

2.14 – CD-IN Connector (P1)

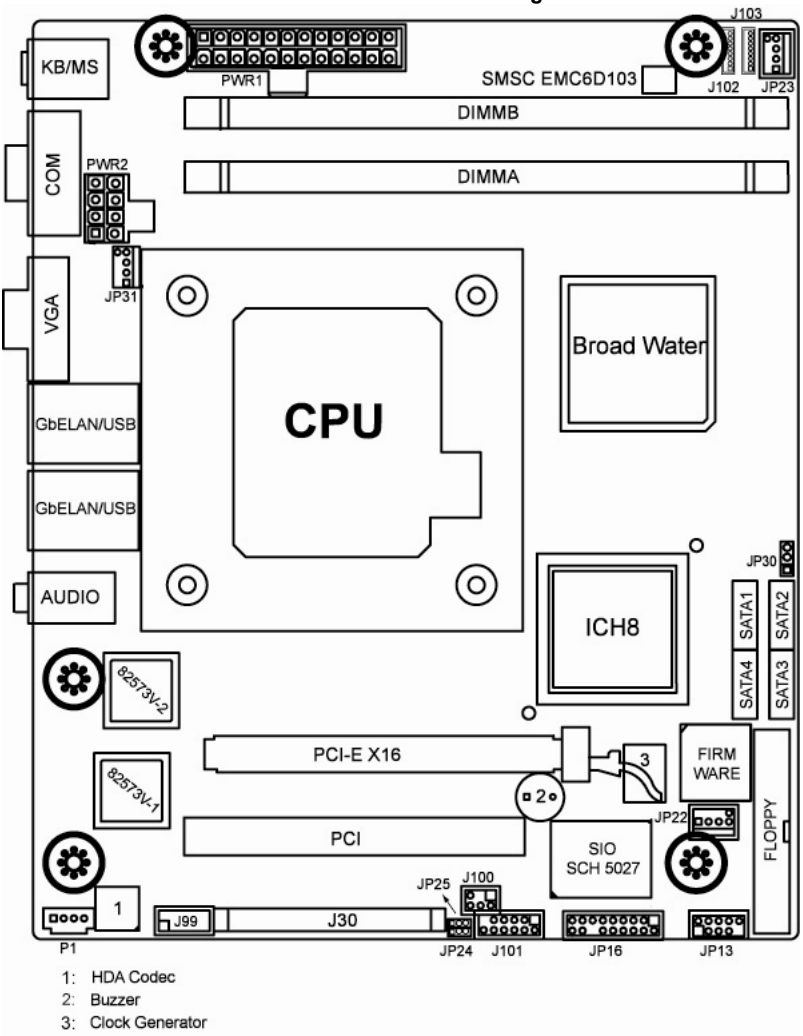


Pin_4: CD-R
Pin_3 : GND
Pin_2 : GND
Pin_1 : CD-L

2.15 – Tips on Installing the Motherboard in Chassis

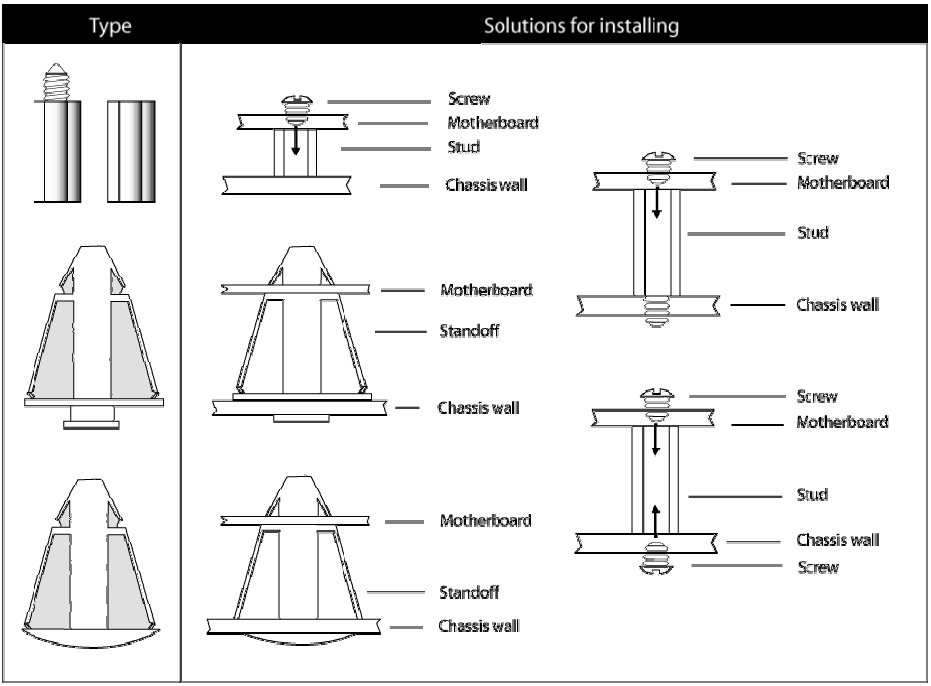
Before installing your motherboard, make sure that your chassis has the necessary motherboard support studs installed. These studs are usually metal and are gold in color. Usually, the chassis manufacturer will pre-install the support studs. If you're unsure of stud placement, simply lay the motherboard inside the chassis and align the screw holes of the motherboard to the studs inside the case. If there are any studs missing, you will know right away since the motherboard will not be able to be securely installed.

Toledo i965R S5180AG2N Mounting Hole Placement



Some chassis include plastic studs instead of metal. Although the plastic studs are usable, Tyan recommends using metal studs with screws that will fasten the motherboard more securely in place.
Below is a chart detailing what the most common motherboard studs look like and how they should be installed.

Mounting the Motherboard



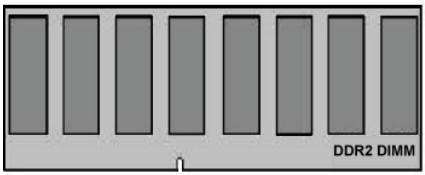
TIP: Use metal studs if possible, as they hold the motherboard into place more securely than plastic standoffs.

2.16 – Installing the Memory

Before attempting to install any memory, make sure that the memory you have is compatible with the motherboard as well as the processor. A Critical aspect to system building is whether you're using the recommended memory for the motherboard that you have. For compatibility information, please check Tyan's web site at: **www.tyan.com**

* Not all steppings of Intel Pentium CPUs support the same type of memory speeds. Consult with Intel for clarification.

The following diagram shows the common types of DDR2 modules you may encounter depending on your board:



Here are a few key points to note before installing memory into your S5180:

- Intel processors support 64bit (non-interleaved) or 128bit (interleaved) memory configurations.
- Only DDR2 533/667/800 MHz memory modules are supported.
- At least one 240-Pin unbuffered DDR2 DIMM module must be installed for the system to turn on and POST (power on self test).
- Only unbuffered DIMMs memory modules are supported.
- NO ECC support.
- S5180 supports up to 4GB.

* Not validated at the time of print, subject to change.

Memory Installation Procedure

When you install the memory modules, make sure the module aligns properly with the memory slot. The modules are keyed to ensure that it is inserted only one way. The method of installing memory modules are detailed by the following diagrams.

DDR2 DIMM Slot-240 pins (1 key)

Once the memory modules are firmly seated in the slot, two latches on either side will close and secure the module into the slot. Sometimes you may need to close the latches yourself.

DDR2 DIMM Slot-240 pins (1 key)

To remove the memory module, simply push the clamps outwards until the memory module pops up. Then simply remove the module.

TIP: When installing memory, a module may require a considerable amount of force to seat properly, although this is very rare. To avoid bending and damaging your motherboard, place it on its anti-static bag and onto a flat surface, and then proceed with memory installation.

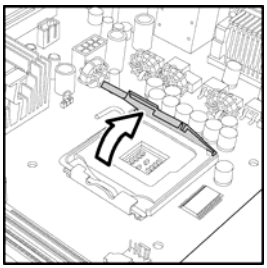
NOTE **YOU MUST ALWAYS** unplug the power connector to the motherboard before performing system hardware changes, to avoid damaging the board or expansion device.

2.17 – Installing the Processor

The S5180 supports the latest 64-bit processor technologies from Intel. However, **only Intel Pentium processor are certified and supported with this motherboard.** Reference the Tyan website for further details: **www.tyan.com**

Processor Installation
The processor should be installed carefully. Make sure you are wearing an antistatic strap and handle the processor as little as possible.
Follow these instructions to install your processor

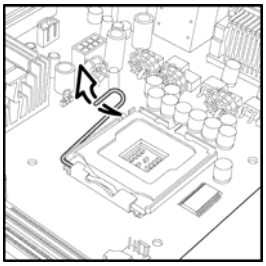
1. Locate the processor socket on the motherboard and lift the protective cover off as shown.

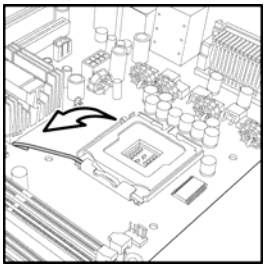


WARNING:

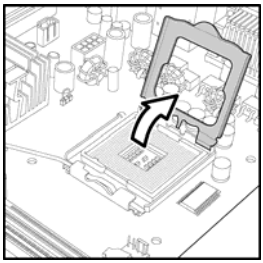
This new processor socket designed by Intel is easily damaged. The processor has to be installed very carefully to prevent the contact pins of the socket from breaking. It is strongly recommended the processor installation job be handled by experienced technicians.

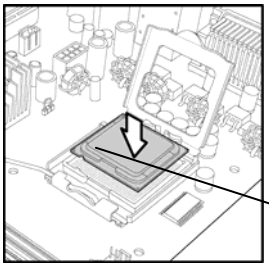
2. Pull the locking lever out of its locked position and let it spring into the open position.



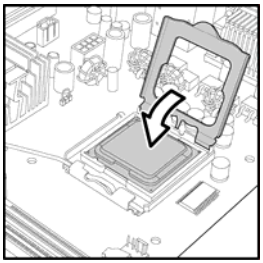


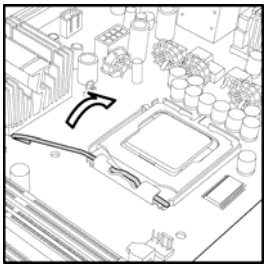
3. Lift the metal cover to expose the socket interior and place the socket in as shown.





4. Close the cover and return the locking lever to its locked position.





Take care when installing processor as it has very fragile connector pins below the processor and can bend and break if inserted improperly.

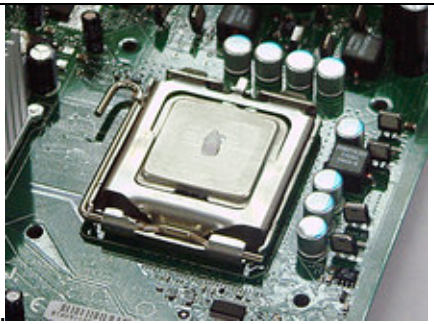
2.18 – Thermal Interface Material

Simply apply a thin layer of thermal compound on to the CPU lid (applying too much will actually reduce the cooling).

1.

2.

3.



4.

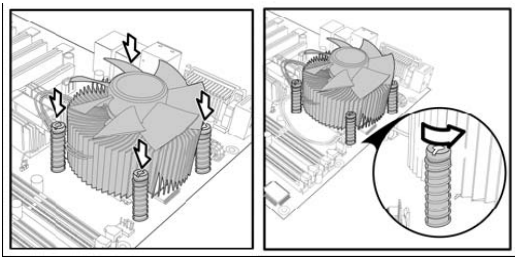
5.

NOTE Always check with the manufacturer of the heatsink & processor to ensure the Thermal Interface material is compatible with the processor & meets the manufacturer's warranty requirements

2.19 – Heatsink Installation Procedures

After you have installed the processor, you should proceed to installing the heatsink. Heatsink will ensure that the processor does not overheat and continues to operate at maximum performance for as long as you own it.

1. Align the heatsink with the four holes around the processor socket.
2. Press the heatsink down until the four screws are securely seated in the holes.
3. Use screw drive to secure the four screws.



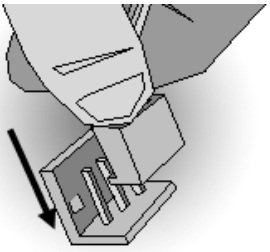
To remove the heatsink you will need to twist each of the black locking pegs until they spring up and unlock the heatsink from the motherboard.

Remember to connect the power supply for the fan to complete the installation.

Because there are many different types of heatsinks available from many different manufacturers, a lot of them have their own method of installation. For the safest method of installation and information on choosing the appropriate heatsink, please refer to Intel's website at **http://www.Intel.com**.

Finishing Installing the Heatsink

After you finish installing the heatsink onto the processor and socket, attach the end wire of the fan (which should already be attached to the heatsink) to the motherboard. The following diagram illustrates how to connect fans onto the motherboard.

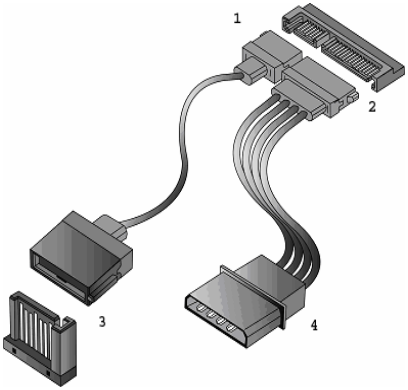


After you have finished installing all the fans you can connect your drives (hard drives, CD-ROM drives, etc) to the motherboard.

2.20 – Attaching Drive Cables

SATA Drivers

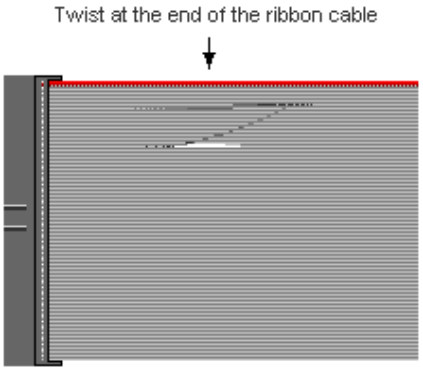
The S5180 is also equipped with 4 Serial ATA (SATA) channels. Connections for these drives are also very simple. There is no need to set Master/Slave jumpers on SATA drives.
Tyan has supplied two SATA cables and one SATA power adapter for boards equipped with SATA" since this is a BOM option. If you are in need of other cables or power adapters please contact your place of purchase.
The following picture illustrates how to connect a SATA drive.



1. **SATA drive cable connection**
2. **SATA drive power connection**
3. **SATA cable motherboard connector**
4. **SATA drive power adapter**

Floppy Drives

Attaching a floppy drive can be done in a similar manner to an IDE drive. See the diagram below for an example of a floppy cable. Most of the current floppy drives on the market require that the cable be installed with the colored stripe positioned next to the power connector. In most cases, there will be a key pin on the cable, which will force proper connection of the cable.



The first floppy drive (commonly denoted as **A:**) is usually attached to the end of the cable with the twist in it. Drive B: is usually connected to the second or third connector in the cable (the second or third connector after you install Drive **A:**).

Refer to your floppy drive's installation instructions (if available), or contact your dealer if you are unsure about how to attach the floppy drive(s). Remember, you can only have 2 floppy drives connected at any given time.

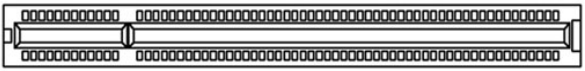
Below are some symptoms of incorrectly installed floppy drives. While they are minor and installing them incorrectly doesn't cause severe problems, it may cause your system to freeze or crash when trying to read and/or write to diskettes.

Symptoms of incorrectly installed floppy drives	
Drive is not automatically detected	Usually caused by faulty cables, cables put in backwards or a bad floppy drive or motherboard. Try another floppy drive to verify the problem if the cable is properly installed or try replacing the actual cable. Also check to see if the onboard floppy controller is enabled in the BIOS setup.
Drive Fail message at bootup	The cable, floppy drive or motherboard may be faulty. Try another drive or cable to verify.
Drive does not power on	Check power cable and cabling. Maybe a bad power supply or drive cable problem.
Drive activity light is constantly on	Usually signifies that the cable on the drive is on backwards, which is a common issue. Reverse the cable at the floppy drive end and try again.

2.21 – Installing Add-In Cards

Before installing add-in cards, it's helpful to know if they are fully compatible with your motherboard. For this reason, we've provided the diagrams below, showing the most common slots that may appear on your motherboard. Not all of the slots shown will necessarily appear on your motherboard, however, there will be combinations of what you see here.

PCI 32 bit 33MHz Slot



PCI-Express x16

Simply find the appropriate slot for your add-in card and insert the card firmly. Do not force any add-in cards (or anything else) into any slots if they won't seat in place. It's better to try another slot or return the faulty card rather than damaging both the motherboard and the add-in card.

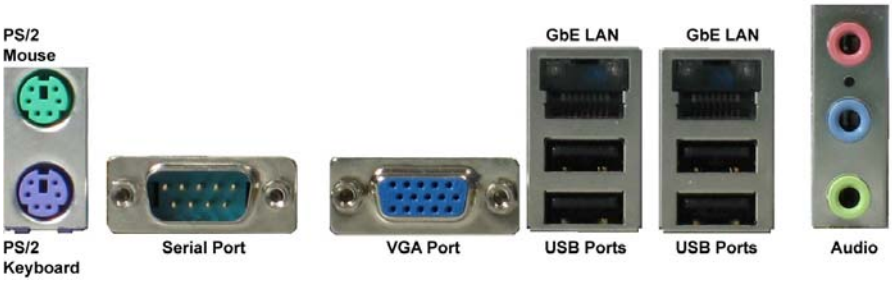
TIP: It is good practice to install add-in cards in a staggered manner, rather than directly adjacent to each other. This allows air to more easily circulate within the chassis, providing improved cooling for all installed devices.

NOTE

YOU MUST ALWAYS unplug the power connector to the motherboard before performing system hardware changes, to avoid damaging the board or expansion device.

2.22 – Connecting External Devices

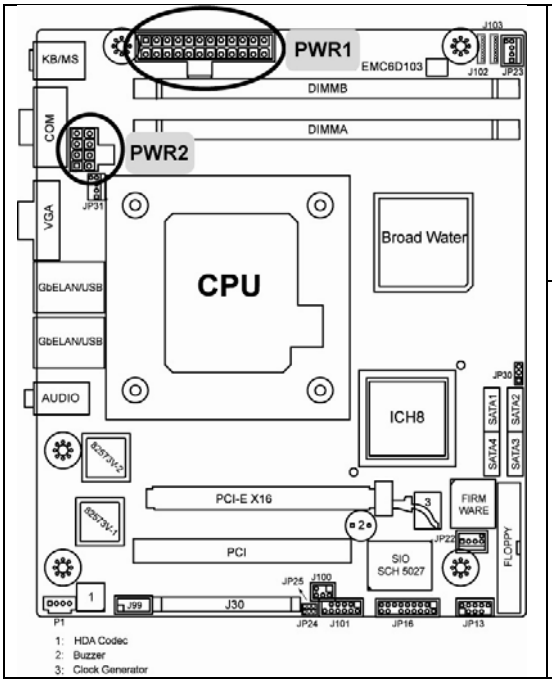
Connecting external devices to the motherboard is an easy task. The standard devices you should expect to plug into the motherboard are keyboards, mice, and printer cables. The following diagram will detail the ATX port stack for the following board:



Besides being used primarily to connect printers, the Printer Port is also used for devices such as Zip drive, some external CD-RW drives and or other external devices. More on the uncommon side these days are the Serial Ports. They were primarily used to connect external modems, but most modems today are using USB or are installed internally.

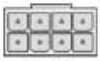
TIP: While the ports have been created to accept connectors in only one direction, make sure to be careful when inserting connectors. At times, attaching connectors in the incorrect orientation can damage, bend and or break the pins.

2.23 – Installing the Power Supply



PWR1: 24-pin EPS 12V power connector

PWR2: 8-pin EPS 12V power connector



We suggest using a 400W or higher power supply; this is of course dependent on how many devices you attach. A 400W is sufficient for systems without many devices (i.e. 1 hard drive, 1 optical drive, and 1 or 2 expansion cards). However, a higher wattage solution may be needed if the system is fully loaded. Look to the www.tyan.com website for further information.

NOTE: The S5180 peripheral drive power connector must be independent of any other devices. A device such as a DVD/CD-ROM drive, hard drive, or any other devices cannot be attached onto the same power line. If connected, system stability is compromised.

2.24 – Finishing Up

Congratulations on making it this far! You're finished setting up the hardware aspect of your computer. Before closing up your chassis, make sure that all cables and wires are connected properly, especially IDE cables and most importantly, jumpers. You may have difficulty powering on your system if the motherboard jumpers are not set correctly.

In the rare circumstance that you have experienced difficulty, you can find help by asking your vendor for assistance. If they are not available for assistance, please find setup information and documentation online at our website or by **calling your vendor's support line.**

Chapter 3: BIOS Setup

Installation

The BIOS is the basic input/output system, the firmware on the motherboard that enables your hardware to interface with your software. This chapter describes different settings for the BIOS that can be used to configure your system.

The BIOS section of this manual is subject to change without notice and is provided for reference purposes only. The settings and configurations of the BIOS are current at the time of print, and therefore may not match exactly what is displayed on screen.

This section describes the BIOS setup program. The setup program lets you modify basic configuration settings. The settings are then stored in a dedicated, battery-backed memory (called NVRAM) that retains the information when the power is turned off.

This motherboard's BIOS is a customized version of the industry-standard BIOS for IBM PC AT-compatible personal computers. The BIOS provides critical, low-level support for the system's central processing unit (CPU), memory, and I/O subsystems.

This BIOS has been customized by adding important features such as password protection, power management, and chipset "tuning" features that control the system. This section will guide you through the process of configuring the BIOS for your system setup.

Starting Setup

The BIOS is immediately activated when you turn on the computer. The BIOS reads system configuration in CMOS RAM and begins the process of checking out the system and configuring it through the Power-On-Self-Test (POST).

When these preliminary tests are complete, the BIOS searches an operating system on one of the system's data storage devices (hard drive, CD-ROM, etc). If one is found, the BIOS will launch that operating system and hand control over to it. You can enter the BIOS setup by pressing the [**Delete**] key when the machine boots up and begins to show the memory count.

Setup Basics

The table below shows how to navigate in the setup program using the keyboard.

Key	Function
Tab	Moves from one selection to the next
Left/Right Arrow Keys	Change from one menu to the next
Up/Down Arrow Keys	More between selections
Enter	Opens highlighted section
PgUp/PgDn Keys	Change settings.

Getting Help

Pressing [**F1**] will display a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press [**ESC**] or the [**F1**] key again.

In Case of Problems

If you discover that you have trouble booting the computer after making and saving the changes with the BIOS setup program, you can restart the computer by holding the power button down until the computer shuts off (usually within 4 seconds); resetting by pressing CTRL-ALT-DEL; or clearing the CMOS.

The best advice is to only alter settings that you thoroughly understand. In particular, do not change settings in the Chipset section unless you are absolutely sure of the outcome. The Chipset defaults were carefully chosen by TYAN or your system manufacturer for the best performance and reliability. Even a seemingly small change to the Chipset setup options may cause the system to become unstable or unusable.

Setup Variations

Not all systems will have the same BIOS setup layout or options. While the basic look and function of the BIOS setup remains more or less the same for most systems, the appearance of your Setup screen may differ from the charts shown in this section. Each system design and chipset combination requires a custom configuration. In addition, the final appearance of the Setup program depends on the system designer. Your system designer may decide that certain items should not be available for user configuration, and remove them from the BIOS setup program.

NOTE: On the following pages, options written in **bold type** represent the BIOS Setup default.

3.01 – Main BIOS Setup

When you enter Phoenix - AwardBIOS CMOS Setup Utility, the following screen will appear as below:

Phoenix – AwardBIOS CMOS Setup Utility

► Standard CMOS Features	► Frequency/Voltage Control
► Advanced BIOS Features	Load Fail-Safe Defaults
► Advanced Chipset Features	Load Optimized Defaults
► Integrated Peripherals	Set Supervisor Password
► Power Management Setup	Set User Password
► PnP/PCI Configurations	Save & Exit Setup
► PC Health Status	Exit Without Saving
Esc: Quit ↑↓←→: Select Item	F10: Save & Exit Setup
Time, Date, Hard Disk Type…	

Standard CMOS Features:
Use this menu for basic system configuration.

Advanced BIOS Features:
Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features:
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals:
Use this menu to specify your settings for integrated peripherals.

Power Management Setup:
Use this menu to specify your settings for power management.

PnP / PCI Configuration:
This entry appears if your system supports PnP / PCI.

PC Health Status:
Use this menu to show your system temperature, speed and voltage status.

Frequency/Voltage Control:
Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults:
Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults:
Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Supervisor / User Password:
Use this menu to set User and Supervisor Passwords.

Save & Exit Setup:
Save CMOS value changes to CMOS and exit setup.

Exit Without Save:
Abandon all CMOS value changes and exit setup.

3.02 – Standard CMOS Features

In this section, you can alter general features such as the date and time, as well as access to the IDE configuration options. Note that the options listed below are for options that can directly be changed within the Main Setup screen. User can Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Phoenix – AwardBIOS CMOS Setup Utility

Standard CMOS Features

Date (mm: dd: yy)	Thu, Sep 27 2007	Item Help
Time (hh: mm: ss)	9: 19: 23	
►IDE Channel 0 Master	[None]	Menu Level ►
►IDE Channel 0 Slave	[None]	
►IDE Channel 1 Master	[None]	Change the day, month, year and century
►IDE Channel 1 Slave	[None]	
►IDE Channel 2 Master	[None]	
►IDE Channel 3 Master	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Based Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Phoenix – AwardBIOS CMOS Setup Utility
IDE Channel 0 Master

IDE HDD Auto-Detection	**[Press Enter]**	**Item Help**
IDE Channel 0 Master	**[Auto]**	
Access Mode	**[Auto]**	**Menu Level ►**
Capacity	**0MB**	**To auto-detect the HDD's size, head…on this channel**
Cylinder	**0**	
Head	**0**	
Precomp	**0**	
Landing Zone	**0**	
Sector	**0**	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Date / Time Setup:
System Date: Adjusts the system date.

MM	Months
DD	Days
YYYY	Years

System Time: Adjusts the system clock.

HH	Hours (24hr. format)
MM	Minutes
SS	Seconds

IDE Master / Slave Setup:

Computer detects IDE drive type from drive C to drive F.
None / Auto / Manual

Drive A:
Define the floppy drive type.
None / 360K, 5.25in / 1.2M, 5.25in / 720K, 3.5in / 1.44M, 3.5in / 2.88M, 3.5in

Video:
Define the video display mode.
EGA/VGA / CGA 40 / CGA 80 / MONO

Halt On:
Determine if the computer should stop when an error is detected during power up.
No Errors / All Errors / All, But Keyboard / All, But Diskette / All, But Disk/Key

3.03 – Advanced BIOS Features

In Advanced BIOS features, you will be able to adjust many of the feature that effect system speed and boot-up options.

Phoenix – AwardBIOS CMOS Setup Utility

Advanced BIOS Features

►CPU Feature	[Press Enter]	Item Help
►Hard Disk Boot Priority	[Press Enter]	
Virus Warning	[Disabled]	
CPU L1 & L2 Cache	[Enabled]	
Hyper-Threading Technology	[Enabled]	Menu Level ►
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[Hard Disk]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	[Setup]	
X APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
OS Select For DRAM>64MB	[Non-OS2]	
►Console Redirection	[Press Enter]	
Report No FDD For WIN 95	[No]	
Small Logo(EPA) Show	[Disabled]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Virus Warning:
This option allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection.

Enabled / Disabled

CPU L1 & L2 Cache:
Toggle the use of CPU L1 and L2 cache.

Enabled / Disabled

Hyper-Threading Technology:
This option allows you to enable or disable the Hyper-Threading Technology.

Quick Power On Self Test:
This option allows the system to skip self tests for faster startup.
Enabled / Disabled

First, Second, and Third Boot Devices:
These indicate the boot priority. For example if the First Boot Device is set as Removable, the Second Boot Device as CDROM, and the Third Boot Device as Hard Disk, then the system will try to boot from a removable drive, failing which it will try to boot from a CDROM, and if this also fails, it will try to boot from the Hard Disk.

Boot Other Device:
This option allows the system to boot from any other bootable device.
Enabled / Disabled

Swap Floppy Drive:
This option allows the system to swap floppy drive.
Disabled / Enabled

Boot Up Floppy Seek:
This option allows the system to seek floppy drive when boots up.
Enabled / Disabled

Boot up NumLock Status:
This option allows you to select power on state for NumLock.
Off / On

Gate A20 Option:
Select if chipset or keyboard controller should control GateA20. When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.
Normal / Fast

Typematic Rate Setting:
Toggles control of keyboard key repeat rate.
Enabled/Disabled

Typematic Rate (Chars/Sec):
Defines how many characters are repeated per second when holding down a key on the keyboard.
6 / 8 / 10 / 12 / 15 / 20 / 24 / 30

Typematic Delay (Msec):
Define the delay that occurs at keystroke before that key will start to repeat.
250 / 500 / 750/ 1000

Security Option:
Sets the password on either just the BIOS setup or the entire system (BIOS setup included).
Setup / System

APIC Mode:
This option allows you to enabled or disabled Advanced Programmable Interrupt Controller (APIC) Mode.

Enabled / Disabled

MPS Version Control For OS:
When two CPUs are onboard (not a feature of this board) this feature allows you to select Multi-Processor Spec. (MPS) version control for OS when the logo test executes.

1.1 / 1.4

OS Select For DRAM>64MB:
This BIOS feature determines how systems with more than 64MB of memory are managed. A wrong setting can cause problems like erroneous memory detection.
If you are using an older version of the IBM OS/2 operating system, you should select OS/2.
If you are using the IBM OS/2 Warp v3.0 or higher operating system, you should select Non-OS/2.
If you are using an older version of the IBM OS/2 operating system but have already installed all the relevant IBM Fix-Paks, you should select Non-OS/2.
Users of non-OS/2 operating systems (like Microsoft Windows 2003) should select the Non-OS2 option.

Non-OS2 / OS2

Console Redirection:
This option will redirect the BIOS and POST screens to the serial port to allow remote management using a terminal server.

Report No FDD For WIN 95:
Set this option to Yes if you are using Windows 95/98 without a floppy to release IRQ6 (this is required to pass Windows 95/98's SCT test and get the logo).

No / Yes

Small Logo (EPA) Show:
Toggle the display of the EPA Energy Star logo at POST.

Enabled / Disabled

Console Redirection

Press [Enter] to access Console Redirection.

Phoenix – AwardBIOS CMOS Setup Utility
Console Redirection

Console Redirection	**[Disabled]**	**Item Help**
X Baud Rate	**115200**	
Agent Address	**[3F8H]**	**Menu Level ►**
Agent after boot	**[Disabled]**	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Console Redirection:
This option will redirect the BIOS and POST screens to the serial port to allow remote management using a terminal server.

Enabled / Disabled

Baud Rate:
This feature is used to enable the specified baud rate.

9600 / 19200/ 38400 / 57600 / 115200

Agent Address:
Address connection

3F8H / 2F8H / 3E8H / 2E8H / Auto

Agent after boot:
Keeps Agent running after OS boot.

Enabled **/** Disabled

CPU Features

Press [Enter] to access advanced features of the CPU.

Phoenix – AwardBIOS CMOS Setup Utility
CPU Feature

Thermal Management	**[Thermal Monitor 1]**	**Item Help**
X TM2 Bus Ratio	**14x**	**Menu Level ►**
X TM2 Bus VID	**1.3500V**	
Limit CPUID MaxVal	**[Disabled]**	**Thermal Monitor 1 (On die throtting)**
C1E Function	**[Auto]**	
Execute Disable Bit	**[Enabled]**	**Thermal Monitor 2 (Ratio & VID transition)**
Virtualization Technology	**[Enabled]**	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Thermal Management:
Thermal Management throttles the processor back as it reaches its maximum operating temperature. Throttling reduces the number of processing cycles, thereby diminishing the heat dissipation of the CPU. This cools the unit. Once the CPU has reached a safe operating temperature, thermal throttling is automatically disabled, and normal full speed processing begins again.
The BIOS supports two types of thermal management.

- **Thermal Monitor 1:** Thermal Monitor 1 uses a highly accurate on-die temperature sensing circuit in the CPU that has the ability to act quickly upon any thermal issues (~50ns). This circuitry keeps an eye on the most taxed areas of the CPU-die at all times and will quickly act upon temperatures going over the safety limits. The thermal monitor's control circuit, when active, lowers the CPU temperature by throttling the internal CPU clock speed. This is done with a 50% duty-cycle, which means that a 2GHz CPU will then effectively run at a 1GHz clock speed. Due to the fast response time of the thermal monitor circuit (~50ns) the CPU will only be 'throttled' for a very brief period. Once the CPU-die temperature is within safe operating limits again it'll set back to the 2GHz clock speed it originally operated at.
- **Thermal Monitor 2:** Thermal Monitor 2 decreases or increases the CPU clock and core voltage according to the CPU load. This information is read from the five VID pins of the CPU. Accordingly, the CPU temperature is also automatically decreased, when the core voltage is decreased. This

improves the CPU lifespan. The states switch is so fast that the performance decrease is insignificant.

TM2 Bus Ratio:
This represents the throttle frequency for the Trimedia TM2 PCI bus interface.
Enter any integer number between 0 and 255 inclusive to set this frequency.

TM2 Bus VID:
This represents the throttle voltage for the Trimedia TM2 PCI bus interface.
Choose a value between 0.8375V and 1.6000V inclusive, in steps of 0.0125V.

Limit CPUID MaxVal:
Set Limit CPUID MaxVal to 3, should be "Disabled" for Win2003.
Enabled / Disabled

C1E Function:
Set the CPU C1E function.
Auto / Disabled

Execute Disable Bit:
If disabled, forces the XD feature flag to always return 0.
Enabled / Disabled

Virtualization Technology:
If enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Enabled / Disabled

Hard Disk Boot Priority

Select （Press Enter）to set Hard Disk Boot Priority

Phoenix – AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. USB-HDD0	**3System USB Flash Disk**	**Item Help**
2. Ch0 M	**HDT722516DLA380**	**Menu Level ►**
3. Ch3 M	**HDT722516DLA380**	**Use (↑) or (↓) to select a device, then press<+> to move it up, or <-> to move it down the list. Press (ESC) to exit this menu.**
4. Bootable Add-in Cards		

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

This feature will auto detect all hard disks of bootable device on the system. It also allows users to select hard disk device booting priority.

3.04 – Advanced Chipsets Features

In Advanced Chipset Features, you will be able to adjust many of the chipset special features.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Features

System BIOS Cacheable	**[Enabled]**	**Item Help**
Memory Hole At 15M-16M	**[Disabled]**	
		Menu Level ►
∗ ∗VGA Setting∗ ∗		
PEG/Onchip VGA Control	**[Auto]**	
On-Chip Frame Buffer Size	**[8MB]**	
DVMT Mode	**[DVMT]**	
DVMT/FIXED Memory Size	**[128mb]**	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

System BIOS Cacheable:
Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.
Enabled / Disabled

Memory Hole:
Reserve 15-16M Memory for ISA use.
Enabled / Disabled

PEG/Onchip VGA Control:
This option allows the BIOS to check to see if a PCI Express graphics card is installed. If it detects that a PCI Express graphics card is present, the motherboard boots up using that card. Otherwise, it defaults to the onboard graphics processor
Auto / PEG / Onchip VGA

On-Chip Frame Buffer Size:
This BIOS feature controls the amount of system memory that is allocated to the integrated graphics
1MB / 8MB

DVMT Mode:
It allows you to select the DVMT operating mode.
FIXED / DVMT

DVMT/FIXED Memory Size:
When set to DVMT Mode, the graphics chip will dynamically allocate system memory as graphics memory
128MB / 256MB / MAX

3.05 – Integrated Peripherals

Options related to onboard peripheral features can be altered through the following:

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

►OnChip IDE Device	[Press Enter]	Item Help
►Onboard Device	[Press Enter]	
►SuperIO Device	[Press Enter]	Menu Level ►
Watch Dog Timer Select	[Disabled]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Watch Dog Timer Select:
This BIOS feature controls the operation of the chipset's Watchdog Timer.
Dsabled] / 1 Min / 2 Min / 4 Min / 8 Min / 15 Min / 30 Min / 1 Hour

OnChip IDE Device

Phoenix – AwardBIOS CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
IDE DMA Transfer Access	[Enabled]	
IDE Primary Master PIO	[Auto]	Menu Level ►►
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	If your IDE hard drive supports block mode select Enabled for automatic detection of the optional number of block read/writes per sector the drive can support
IDE Primary Slave UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

IDE HDD Block Mode:
Select Disabled or Enabled IDE HDD Block Mode
Enabled / Disabled

IDE DMA Transfer Access:
Select Enabled to run the HDD's DMA function
Enabled / Disabled

Primary / Secondary Master/ Slave PIO:
The four IDE PIO (Programmed Input / Output) field let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
Auto / Mode 0 / Mode 1 / Mode 2 / Mode 3 / Mode 4

Primary / Secondary Master/ Slave UDMA:
This allows you to select the mode of operation for the Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable bios SUPPORT.
Auto / Disabled

On-Chip Secondary PCI IDE:
IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship that is determined by the cabling configuration used to attach them to the controller.
PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to affect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by itselve. This is simpler and more efficient (and faster).
Your system includes a secondary built-in IDE controller, which operates on the PCI bus.
Enabled / Disabled

Phoenix – AwardBIOS CMOS Setup Utility
Onboard Device

		Item Help
USB Controller	**[Enabled]**	
USB 2.0 Controller	**[Enabled]**	
USB Keyboard Support	**[Disabled]**	**Menu Level ►►**
USB Mouse Support	**[Disabled]**	
LAN1 82573V Ctrl	**[Enabled]**	
LAN2 82573V Ctrl	**[Enabled]**	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

USB Controller:
This option enables or disables IRQ allocation for the USB (Universal Serial Bus) controller. Enable this if you are using a USB device. If you disable this while using a USB device, you may have problems running that device. However, if you don't use any USB devices, set the option to Disabled. It will free up an IRQ for other devices to use.

Enabled / Disabled

Disabled

Note

This option is for the older USB 1.1 specification

USB 2.0 Controller:
This option enables or disables IRQ allocation for the USB 2 (Universal Serial Bus - Specification 2.0) controller. Enable this if you are using a USB 2 device. If you disable this while using a USB 2 device, you may have problems running that device. However, if you don't use any USB 2 devices, set the option to Disabled. It will free up an IRQ for other devices to use.

Enabled / Disabled

Note

USB 2.0 has a throughput of 480 Mbps (40 times faster than USB 1.1) and is fully backward compatible with USB 1.1.

USB Keyboard Support:
Select “Enabled” if your system contains a USB controller and you have a USB keyboard.

Enabled / Disabled

USB Mouse Support:
Set this option to be enabled if your system has a USB controller (including USB 2.0) and a USB mouse.

Enabled / Disabled

LAN1 82573V Ctrl:
This enables/disables the on board 82573V LAN1 controller. The default is Enabled, which determines whether to enable or disable this chip.

Disabled / Enabled

LAN2 82573V Ctrl:
This enables/disables the on board 82573V LAN1 controller. The default is Enabled, which determines whether to enable or disable this chip.

Disabled / Enabled

Super IO Device

Phoenix – AwardBIOS CMOS Setup Utility

Super IO Device

Wake UP FROM S3	**[BUTTON ONLY]**	**Item Help**
Onboard FDC Controller	**[Enabled]**	
Onboard Serial Port 1	**[3F8 / IRQ4]**	**Menu Level ►►**

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Press Power Button key to resume from S3 state.

Wake UP FROM S3:
This option defines how the system can be woken from sleep mode.
Button only / Keyboard +BTN / KB +Mouse +BTN / Mouse +BTN

Onboard FDC Controller:
Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select "Disabled" in the field.
Enabled / Disabled

Onboard Serial Port 1:
Select an address and corresponding interrupt for the first and second serial ports.
3F8/IRQ4 / 2E8/IRQ3 / 3E8/IRQ4 / 2F8/IRQ3 / Disabled / Auto

3.06 – Power Management Setup

Options related to power management can be altered through the following:

Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	**[Enabled]**	**Item Help**
Run VGABIOS if S3 Resume	**[Auto]**	
Power Management	**[User Define]**	
Video Off Method	**[DPMS]**	
Video Off In Suspend	**[Yes]**	**Menu Level ►**
Suspend Type	**[Stop Grant]**	
MODEM Use IRQ	**[3]**	
Suspend Mode	**[Disabled]**	
HDD Power Down	**[Disabled]**	
Soft-Off by PWR-BTTN	**[Instant-Off]**	
Intruder Support	**[Disabled]**	
PWRON After PWR-Fail	**[Former Sts]**	
Wake-Up by PCI card	**[Enabled]**	
Power On by Ring	**[Enabled]**	
USB KB Wake-Up From S3	**[Disabled]**	
Resume by Alarm	**[Disabled]**	
X Date (of month) Alarm	**0**	
X Time (hh:mm:ss) Alarm	**0 : 0 : 0**	
*** * Reload Global Timer Events * ***		
Primary IDE 0	**[Disabled]**	
Primary IDE 1	**[Disabled]**	
Secondary IDE 0	**[Disabled]**	
Secondary IDE 1	**[Disabled]**	
FDD,COM, LPT Port	**[Disabled]**	
PCI PIRQ (A-D)#	**[Disabled]**	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

ACPI Function:
Toggles advanced power and configuration done by OS.
Enabled / Disabled

Run VGABOIS if S3 Resume:
Defines the type used to run VGABOIS if S3 Resume.
Auto / Yes / No

Power Management:
This function allows you to set the default parameters of power-saving modes. Set this to User Define to choose your own parameters. The following table shows the parameters for Maximum Saving and Minimum Saving options for the various modes:

Mode	Doze	Standby	Suspend	HDD Power Down
Min Saving	1 hour	1 hour	1 hour	15 min
Max Saving	1 min	1 min	1 min	1 min

Min Saving / Max Saving / User Define

Video Off Method:

Defines the method used to power off graphics.

V/H SYNC+Blank / Blank / DPMS

Video Off in Suspend:

This option defines the time frame in which the video will be disabled under current power management settings. The settings are:

No: System BIOS will never turn off the screen.

Yes: System BIOS turns of the screen when system is in SUSPEND mode.

Suspend Type:

This option defines the system suspend type. The two suspend types are:

Power on Suspend: If this is selected, the CPU will enter into Doze mode.

Stop Grant: When selected, the CPU clock will enter Sleep mode.

In both of these modes, the system activities are detected by monitoring the IRQ signals or I/O

MODEM Use IRQ:

Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

NA / 3 / 4 / 5 / 7 / 9 / 10 / 11

Suspend Mode:

Defines the method used to power off the system.

Disabled / 1 Min / 2 Min / 4 Min / 6 Min / 8 Min / 10 Min / 20 Min / 30Min / 40Min / 1 Hour

HDD Power Down:

Defines hard drive power down delay.

Disabled / 1 min-15 min

Soft-Off by PWRBTTN:

Defines the mode of the Soft-Off by PWRBTTN.

Delay 4 Sec / Instant-Off

Intruder Support:

This feature is used to enable/disable the function: when chassis open event is detected, BIOS will record the event.

Disabled/ Enabled

PWRON After PWR-Fail:

When the system is shut down owing to the power failure, the system will not be back to power on by itself. This feature allows you to set the system back to which power status of the system when the system power is resumed.

On / Off / Former-Sts

Wake-Up by PCI card:

When set at Enabled, any PCI-PM event awakes the system from a PCI-PM controlled state. The options are Disabled, Enabled.

Enabled / Disabled

Power On by Ring:

An incoming call via modem awakes the system from its soft-off mode.

Enabled / Disabled

USB KB Wake-Up from S3:

When set at Disabled, it doesn't allow USB keyboard to activate the system from ACPI S3 power

saving mode.
Enabled / Disabled

Resume by Alarm:
This feature allows you to set the when the system being turned on from the system power-off status.
Enabled / Disabled

Primary IDE 0:
When the primary master HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.
Enabled / Disabled

Primary IDE 1:
When the primary slave HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.
Enabled / Disabled

Secondary IDE 0:
When the secondary master HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.
Enabled / Disabled

Secondary IDE 1:
When the secondary slave HDD is working, the system timer will be reloaded and the system will not be into the suspend mode.
Enabled / Disabled

FDD, COM, LPT Port:
When FDD, COM, or LPT is working, the system timer will be reloaded and the system will not be into the suspend mode.
Enabled / Disabled

PCI PIRQ (A-D)#:
The default value for this setting is Disabled.
Enabled / Disabled

3.07 – PnP/PCI Configurations

Options related to all the configurations of PnP / PCI resources.

Phoenix – AwardBIOS CMOS Setup Utility

PnP / PCI Configurations

Init Display First	[PCI Slot]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto (ESCD)]	
X IRQ Resources	Press Enter	Menu Level ►
PCI / VGA Palette Snoop	[Disabled]	
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
INT Pin 5 Assignment	[Auto]	
INT Pin 6 Assignment	[Auto]	
INT Pin 7 Assignment	[Auto]	
INT Pin 8 Assignment	[Auto]	
∗∗PCI Express Relative Items ∗∗		
Maximum Payload Size [128]		

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Init Display First:
This item selects which display card init first.
PCI Slot / Onboard

Reset Configuration Data:
This setting allows you to clear ESCD data.
Enabled / Disabled

Resources Controlled By:
Default whether system resources are controller by BIOS or by user.
Manual / Auto (ESCD)

PCI / VGA Palette Snoop:
Leave as default.
Enabled / Disabled

IRQ Resources:
Press Enter

INT Pin 1/2/3/4/5/6/7/8 Assignment:
This feature allows you to assign the PCI IRQ numbers for PCI slots. Selecting the default, Auto, allows the PCI controller to automatically allocate the IRQ numbers.
Auto / 3 / 4 / 5 / 7 / 9 / 10 / 11 / 12 / 14 / 15

Maximum Payload Size [128]:

This setting defines the maximum payload size.
128 / 256 / 512 / 1024 / 2048 / 4096

This controls the maximum amount of data that can be transferred in a packet. Larger payload sizes increase data throughput, but increase the time that an application must wait for data to begin being transferred.

3.08 – PC Health Status

This menu is related to detecting system temperature, voltage, fan and speed.

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

►Fan control	[Press Enter]	Item Help
CPU Temperature	51℃	
MCH Temperature	25℃	Menu Level ►
Vccp	1.34V	
5V	5.07V	
12V	11.59V	
V5SB	5.17V	
Fan1-JP31	2764 RPM	
Fan2-JP23	0 RPM	
Fan3-JP22	0 RPM	
Fan4-J102-1	0 RPM	
Fan5-J102-2	0 RPM	
Fan6-J103-1	0 RPM	
Fan7-J103-2	0 RPM	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Note: The onboard SMSC SCH5027 hardware monitoring ASIC automatically detects the system, motherboard and CPU temperature. The hardware monitor ASIC also detects the voltage output through the voltage regulators.

AutoFAN Control

AutoFan ctrl	[Disabled]	Item Help
FAN1 3,4 Pin Select	[4 Pin]	
FAN2 3,4 Pin Select	[4 Pin]	Menu Level ►
FAN3 3,4 Pin Select	[4 Pin]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

AutoFan Control:

This feature is used to set function of Auto Mode Fan Control.

Enabled / Disabled

Fan1/2/3 Number of Pins Select:

These features are used to select 3 or 4 pin fan connector. After the setting, then you can use the function of "Auto Fan Control".

3 Pin / 4 Pin

Frequency/Voltage Control

This section facilitates controlling the CPU clock and frequency ratio.

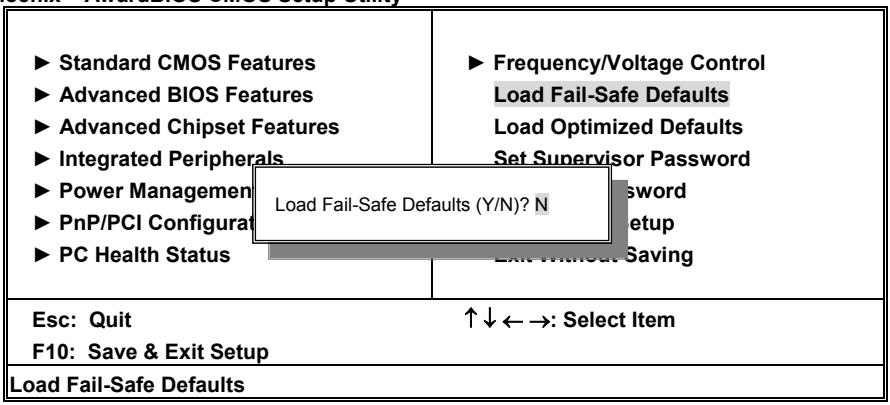
CPU Clock Ratio	**[14 X]**	**Item Help** **Menu Level ►**
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help **F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults**		

CPU Clock Ratio:

The CPU clock ratio setting defines how fast the CPU clock runs relative to the bus speed. TYAN **does not recommend** changing this setting from the default setting. Enter any integer value between 8 and 50. The default is **14x**.

3.09 – Load Fail-Safe Defaults

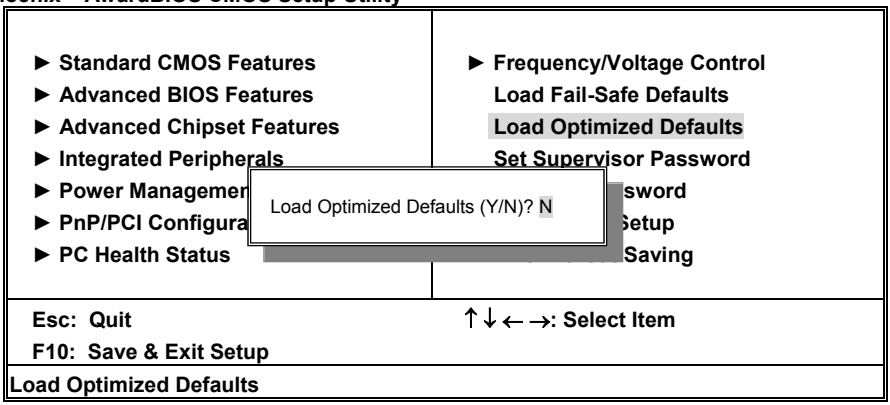
Phoenix – AwardBIOS CMOS Setup Utility



When you press <Enter> on this item you get a confirmation dialog box with a message similar to:
Load Fail-Safe Defaults (Y/N)? N
Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

3.10 – Load Optimized Defaults

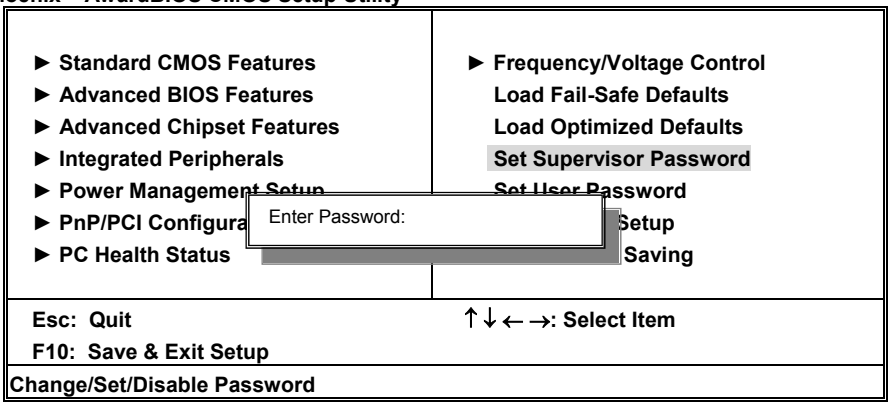
Phoenix – AwardBIOS CMOS Setup Utility



When you press <Enter> on this item you get a confirmation dialog box with a message similar to:
Load Optimized Defaults (Y/N)? N
Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

3.11– Supervisor/User Password Setting

Phoenix – AwardBIOS CMOS Setup Utility

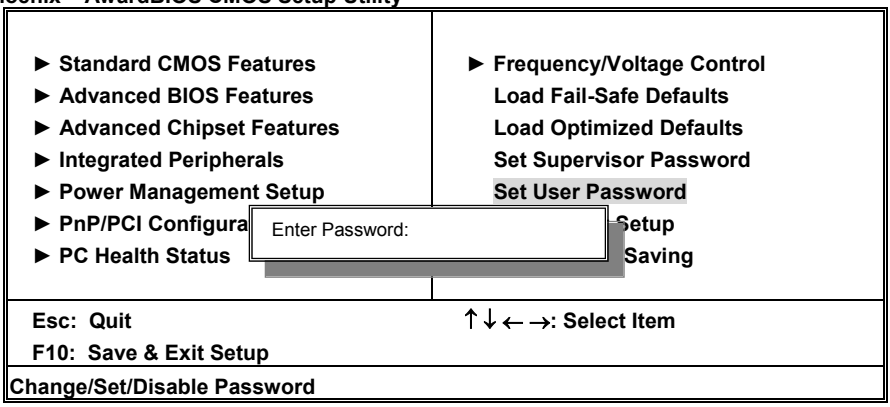


You can set either a supervisor or a user password, or both of them. The differences are:

Set Supervisor Password: Can enter and change the options of the setup menus.

Set User Password: Can enter but does not have permission to change any options.
When you select this function, the following message will appear at the center of the screen to assist you in creating a password.
ENTER PASSWORD:

Phoenix – AwardBIOS CMOS Setup Utility



Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

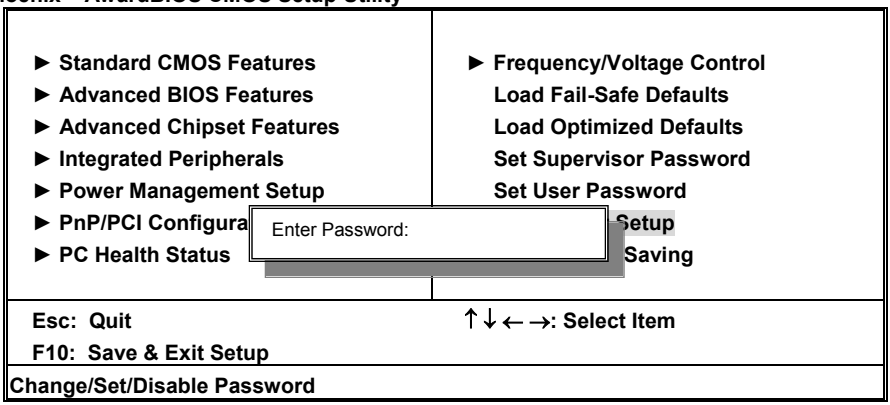
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

3.12 – Exit Selecting

Phoenix – AwardBIOS CMOS Setup Utility



Save & Exit Setup

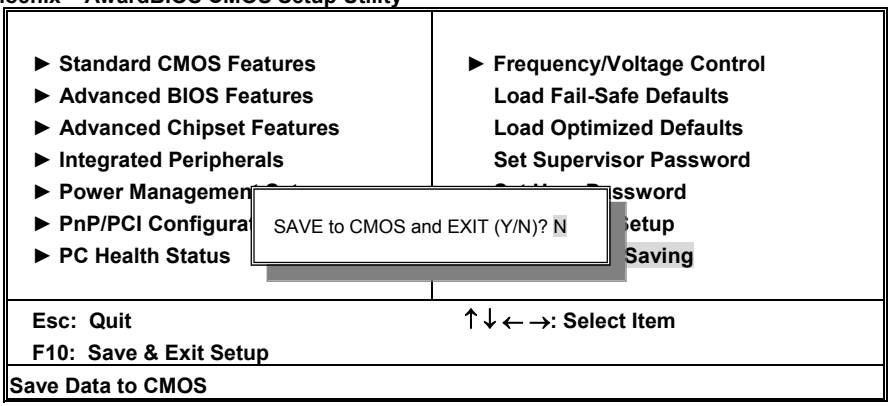
Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Phoenix – AwardBIOS CMOS Setup Utility



Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 4: Diagnostics

Note: if you experience problems with setting up your system, always check the following things in the following order:

CPU, Memory, Video

By checking these items, you will most likely find out what the problem might have been when setting up your system. For more information on troubleshooting, check the Tyan website at: http://www.tyan.com.

4.00 Beep Codes

Fatal errors which halt the boot process are communicated through a series of audible beeps.

(1) Memory module initialization failed
  (a) memory modules might not be plugged in correct configuration
  (b) wrong type of memory
  (c) bad memory modules
(2) Graphics initialization failed

Before contacting your vendor or Tyan Technical Support, be sure that you note as much as you can about the beep code length and order that you experience. Also, be ready with information regarding add-in cards, drives and O/S to speed the support process and come to a quicker solution.

4.01 Flash Utility

Every BIOS file is unique for the motherboard it was designed for. For Flash Utilities, BIOS downloads, and information on how to properly use the Flash Utility with your motherboard, please check the Tyan web site: http://www.tyan.com

NOTE	Please be aware that by flashing your BIOS, you agree that in the event of a BIOS flash failure, you must contact your dealer for a replacement BIOS. There are no exceptions. Tyan does not have a policy for replacing BIOS chips directly with end users. In no event will Tyan be held responsible for damages done by the end user.

Appendix: Glossary

ACPI (Advanced Configuration and Power Interface): a power management specification that allows the operating system to control the amount of power distributed to the computer's devices. Devices not in use can be turned off, reducing unnecessary power expenditure.

AGP (Accelerated Graphics Port): a PCI-based interface which was designed specifically for demands of 3D graphics applications. The 32-bit AGP channel directly links the graphics controller to the main memory. While the channel runs only at 66 MHz, it supports data transmission during both the rising and falling ends of the clock cycle, yielding an effective speed of 133 MHz.

ATAPI (AT Attachment Packet Interface): also known as IDE or ATA; a drive implementation that includes the disk controller on the device itself. It allows CD-ROMs and tape drives to be configured as master or slave devices, just like HDDs.

ATX: the form factor designed to replace the AT form factor. It improves on the AT design by rotating the board 90 degrees, so that the IDE connectors are closer to the drive bays, and the CPU is closer to the power supply and cooling fan. The keyboard, mouse, USB, serial, and parallel ports are built-in.

Bandwidth: refers to carrying capacity. The greater the bandwidth, the more data the bus, phone line, or other electrical path can carry. Greater bandwidth results in greater speed.

BBS (BIOS Boot Specification): a feature within the BIOS that creates, prioritizes, and maintains a list of all Initial Program Load (IPL) devices, and then stores that list in NVRAM. IPL devices have the ability to load and execute an OS, as well as provide the ability to return to the BIOS if the OS load process fails. At that point, the next IPL device is called upon to attempt loading of the OS.

BIOS (Basic Input/Output System): the program that resides in the ROM chip, which provides the basic instructions for controlling your computer's hardware. Both the operating system and application software use BIOS routines to ensure compatibility.

Buffer: a portion of RAM which is used to temporarily store data; usually from an application though it is also used when printing and in most keyboard drivers. The CPU can manipulate data in a buffer before copying it to a disk drive. While this improves system performance (reading to or writing from a disk drive a single time is much faster than doing so repeatedly) there is the possibility of losing your data should the system crash. Information in a buffer is temporarily stored, not permanently saved.

Bus: a data pathway. The term is used especially to refer to the connection between the processor and system memory, and between the processor and PCI or ISA local buses.

Bus mastering: allows peripheral devices and IDEs to access the system memory without going through the CPU (similar to DMA channels).

Cache: a temporary storage area for data that will be needed often by an application. Using a cache lowers data access times since the information is stored in SRAM instead of slower DRAM. Note that the cache is also much smaller than your regular memory: a typical cache size is 512KB, while you may have as much as 4GB of regular memory.

Closed and open jumpers: jumpers and jumper pins are active when they are "on" or "closed", and inactive when they are "off" or "open".

CMOS (Complementary Metal-Oxide Semiconductors): chips that hold the basic startup information for the BIOS.

COM port: another name for the serial port, which is called as such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another). Parallel ports transmit the bits of a byte on eight different wires at the same time (that is, in parallel form, eight bits at the same time).

DDR (Double Data Rate): a technology designed to double the clock speed of the memory. It activates output on both the rising and falling edge of the system clock rather than on just the rising edge, potentially doubling output.

DIMM (Dual In-line Memory Module): faster and more capacious form of RAM than SIMMs, and do not need to be installed in pairs.

DIMM bank: sometimes called DIMM socket because the physical slot and the logical unit are the same. That is, one DIMM module fits into one DIMM socket, which is capable of acting as a memory bank.

DMA (Direct Memory Access): channels that are similar to IRQs. DMA channels allow hardware devices (like soundcards or keyboards) to access the main memory without involving the CPU. This frees up CPU resources for other tasks. As with IRQs, it is vital that you do not double up devices on a single line. Plug-n-Play devices will take care of this for you.

DRAM (Dynamic RAM): widely available, very affordable form of RAM which looses data if it is not recharged regularly (every few milliseconds). This refresh requirement makes DRAM three to ten times slower than non-recharged RAM such as SRAM.

ECC (Error Correction Code or Error Checking and Correcting): allows data to be checked for errors during run-time. Errors can subsequently be corrected at the same time that they're found.

EEPROM (Electrically Erasable Programmable ROM): also called Flash BIOS, it is a ROM chip which can, unlike normal ROM, be updated. This allows you to keep up with changes in the BIOS programs without having to buy a new chip. TYAN's BIOS updates can be found at http://www.tyan.com

ESCD (Extended System Configuration Data): a format for storing information about Plug-n-Play devices in the system BIOS. This information helps properly configure the system each time it boots.

Firmware: low-level software that controls the system hardware.

Form factor: an industry term for the size, shape, power supply type, and external connector type of the Personal Computer Board (PCB) or motherboard. The standard form factors are the AT and ATX.

Global timer: onboard hardware timer, such as the Real-Time Clock (RTC).

HDD: stands for Hard Disk Drive, a type of fixed drive.

H-SYNC: controls the horizontal synchronization/properties of the monitor.

HyperTransport™: a high speed, low latency, scalable point-to-point link for interconnecting ICs on boards. It can be significantly faster than a PCI bus for an equivalent number of pins. It provides the bandwidth and flexibility critical for today's networking and computing platforms while retaining the fundamental programming model of PCI.

IC (Integrated Circuit): the formal name for the computer chip.

IDE (Integrated Device/Drive Electronics): a simple, self-contained HDD interface. It can handle drives up to 8.4 GB in size. Almost all IDEs sold now are in fact Enhanced IDEs (EIDEs), with maximum capacity determined by the hardware controller.

IDE INT (IDE Interrupt): a hardware interrupt signal that goes to the IDE.

I/O (Input/Output): the connection between your computer and another piece of hardware (mouse, keyboard, etc.)

IRQ (Interrupt Request): an electronic request that runs from a hardware device to the CPU. The interrupt controller assigns priorities to incoming requests and delivers them to the CPU. It is important that there is only one device hooked up to each IRQ line; doubling up devices on IRQ lines can lock up your system. Plug-n-Play operating systems can take care of these details for you.

Latency: the amount of time that one part of a system spends waiting for another part to catch up. This occurs most commonly when the system sends data out to a peripheral device and has to wait for the peripheral to spread (peripherals tend to be slower than onboard system components).

NVRAM: ROM and EEPROM are both examples of Non-Volatile RAM, memory that holds its data without power. DRAM, in contrast, is volatile.

Parallel port: transmits the bits of a byte on eight different wires at the same time.

PCI (Peripheral Component Interconnect): a 32 or 64-bit local bus (data pathway) which is faster than the ISA bus. Local buses are those which operate within a single system (as opposed to a network bus, which connects multiple systems).

PCI PIO (PCI Programmable Input/Output) modes: the data transfer modes used by IDE drives. These modes use the CPU for data transfer (in contrast, DMA channels do not). PCI refers to the type of bus used by these modes to communicate with the CPU.

PCI-to-PCI bridge: allows you to connect multiple PCI devices onto one PCI slot.

Pipeline burst SRAM: a fast secondary cache. It is used as a secondary cache because SRAM is slower than SDRAM, but usually larger. Data is cached first to the faster primary cache, and then, when the primary cache is full, to the slower secondary cache.

PnP (Plug-n-Play): a design standard that has become ascendant in the industry. Plug-n-Play devices require little set-up to use. Devices and operating systems that are not Plug-n-Play require you to reconfigure your system each time you add or change any part of your hardware.

PXE (Preboot Execution Environment): one of four components that together make up the Wired for Management 2.0 baseline specification. PXE was designed to define a standard set of preboot protocol services within a client with the goal of allowing networked-based booting to boot using industry standard protocols.

RAID (Redundant Array of Independent Disks): a way for the same data to be stored in different places on many hard drives. By using this method, the data is stored redundantly and multiple hard drives will appear as a single drive to the operating system. RAID level 0 is known as striping, where data is striped (or overlapped) across multiple hard drives, but offers no fault-tolerance. RAID level 1 is known as mirroring, which stores the data within at least two hard drives, but does not stripe. RAID level 1 also allows for faster access time and fault-tolerance, since either hard drive can be read at the same time. RAID level 0+1 is both striping and mirroring, providing fault-tolerance, striping, and faster access all at the same time.

RAIDIOS: RAID I/O Steering (Intel)

RAM (Random Access Memory): technically refers to a type of memory where any byte can be accessed without touching the adjacent data and is often referred to the system's main memory. This memory is available to any program running on the computer.

ROM (Read-Only Memory): a storage chip which contains the BIOS; the basic instructions required to boot the computer and start up the operating system.

SDRAM (Synchronous Dynamic RAM): called as such because it can keep two sets of memory addresses open simultaneously. By transferring data alternately from one set of addresses and then the other, SDRAM cuts down on the delays associated with non-synchronous RAM, which must close one address bank before opening the next.

Serial port: called as such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another).

SCSI Interrupt Steering Logic (SISL): Architecture that allows a RAID controller, such as AcceleRAID 150, 200 or 250, to implement RAID on a system board-embedded SCSI bus or a set of SCSI busses. SISL: SCSI Interrupt Steering Logic (LSI) (only on LSI SCSI boards)

Sleep/Suspend mode: in this mode, all devices except the CPU shut down.

SDRAM (Static RAM): unlike DRAM, this type of RAM does not need to be refreshed in order to prevent data loss. Thus, it is faster and more expensive.

Standby mode: in this mode, the video and hard drives shut down; all other devices continue to operate normally.

UltraDMA-33/66/100: a fast version of the old DMA channel. UltraDMA is also called UltraATA. Without a proper UltraDMA controller, your system cannot take advantage of higher data transfer rates of the new UltraDMA/UltraATA hard drives.

USB (Universal Serial Bus): a versatile port. This one port type can function as a serial, parallel, mouse, keyboard or joystick port. It is fast enough to support video transfer, and is capable of supporting up to 127 daisy-chained peripheral devices.

VGA (Video Graphics Array): the PC video display standard

V-SYNC: controls the vertical scanning properties of the monitor.

ZCR (Zero Channel RAID): PCI card that allows a RAID card to use the onboard SCSI chip, thus lowering cost of RAID solution

ZIF Socket (Zero Insertion Force socket): these sockets make it possible to insert CPUs without damaging the sensitive CPU pins. The CPU is lightly placed in an open ZIF socket, and a lever is pulled down. This shifts the processor over and down, guiding it into the board and locking it into place.

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assitance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then Tyan Computer Corporation can help. Besides designing innovative and quality products for over a decade, Tyan has continuously offered customers service beyond their expectations. Tyan's website (**www.tyan.com**) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. Tyan also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, Tyan serves multiple market segments with the industry's most competitive services to support them.

"Tyan's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Please feel free to contact us directly for this service at **techsupport@tyan.com**

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: **http://www.tyan.com**
3. Contact your dealer for help BEFORE calling TYAN.
4. Check the TYAN user group: **alt.comp.periphs.mainboard.TYAN**

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid. TYAN will pay to have the board shipped back to you

Notice for the USA
Compliance Information Statement (Declaration of Conformity Procedure) DoC
FCC Part 15: This device complies with part 15 of the FCC Rules

Operation is subject to the following conditions:

This device may not cause harmful interference, and
This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and the receiver.
Plug the equipment into an outlet on a circuit different from that of the receiver.
Consult the dealer on an experienced radio/television technician for help.

Notice for Canada
This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark)
This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

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